

# Exploring Natural Resources Careers

Maryland Department of Environment  
Arbor Day Tree Planting  
April 11, 2012



# Water Resources Engineer

- **Beginning Salaries:** \$49,000-\$119,000 a year
- **Chance for advancement to top salary:** Varies by the type of education.
- **Skills needed:** Bachelors degree in engineering, or licensed engineer, should have excellent communication skills
- **Education needed:** College degree.
- **Type of Work:** develops new equipment and processing systems to purify water so it is safe for drinking water, plumbing, and recreational use
- **Working Conditions:** Part-time office work. Part - time outdoor work.
- **Job Outlook:** There are lots of jobs in water resource engineering.



# Natural Resources Planner

- **Beginning Salaries:** Around \$40,000.
- **Chance for advancement to top salary:** Varies with education and job/project.
- **Skills needed:** Good education, practical skills in construction, speaking, critical thinking and complex problem solving.
- **Education needed:** Bachelor's degree from an accredited college or university in a Science category.

# Planner continued...

- **Type of Work:** Treatment in Acid mining, figuring out issues, and finding solutions.
- **Working Conditions:** Office work, lots of talking, and work outside.
- **Job Outlook:** Working around water. Cleaning up water from mining drainage.
- **% of work done:** Depends on the time of year. In winter – 95% inside. In Spring, Summer, and Fall- its outside 50/50.



# Geologist

- **Beginning Salaries:** For a typical Geologist: about \$39,987.
- **Chance for advancement to top salary:** Depends on the type of education you receive and the type of Geology you choose to study.
- **Skills needed:** Geologists evaluate how certain forces affect our planets. Also, they will perform and evaluate research on various natural components found on earth, or other planets.
  - EX: gravity, weather, volcanoes, liquids, gases.
- **Education needed:** Specialize in Geophysics, Paleontology, Geochemistry, and Marine Geology just to name a few.

# Geologist continued. . .

- **Type of Work:** Must be trained in life, earth, and environmental science. Chemistry, Physics, and mathematics will be required as well.
- **Working Conditions:** 40% outdoors and 60% indoors.
- **Job Outlook:** Very wide range of jobs available especially in the petroleum industry.



# Tree Planting/ Reforestation Team 2012



# Pictures taken during our trip:



Checking the pH of the acid mine drainage.



One of the tools we used while planting trees was a maddock. (shown in the picture above).

# Steel Slag Pond

The Steel Slag Pond is used to neutralize the pH of the drainage, a by-product of the mining process. The pond is constructed with a lining that prevents the pond from overflowing. If the pond were to overflow, it could harm its surroundings; especially nearby streams. The pipes in the leach bed are used to flush out all of the impurities, such as the iron, to keep the water clean. The leach bed also consists of a lime-stone bedding. Steel slag is used to line the pond from the steel-making process.



# What We Did On Our Trip

During our trip to plant trees the Reforestation team learned about the tools used to plant trees. The two tools we used were the maddock and the dibble bar. We spent hours in groups planting various trees in the mountains. During a portion of our trip we took some time to learn about the harsh damages caused by acid mine drainage. Mr. Mark Carney took some time to talk to us about leach bedding, the important reasons as to why we were planting trees there, and what harmful affects acid mine drainage has on our local rivers and streams.

We would like to thank the Maryland Department of Environment (MDE) Bureau of Mines professionals for their invitation to participate in this reforestation project. Students gained valuable information about reforestation, acid mine drainage abatement, and basic tree planting, while working with agency leaders. A special thanks to Mr. Mark Carney, Mr. Mark Hajas, Mrs. Connie Loucks, Mr. Joe Mills and Mr. Mike Garner.

We look forward to participating next year.